



## PATENT ABSTRACTS OF JAPAN

(11) Publication number: **01290191 A**(43) Date of publication of application: **22.11.89**

(51) Int. Cl.

**G11C 11/34**(21) Application number: **63120062**(22) Date of filing: **17.05.88**(71) Applicant: **RICOH CO LTD**(72) Inventor: **WATANABE KAZUHIRO  
OKUBO HIDE**(54) **SENSE AMPLIFIER CIRCUIT DEVICE**

device to be the output of the third amplifying means A3.

## (57) Abstract:

COPYRIGHT: (C)1989,JPO&amp;Japio

**PURPOSE:** To exactly read data by using the data of an arithmetic result for the exclusive OR of the respective outputs of first and second amplifying means as the determining signal of the data for the output of a third amplifying means.

**CONSTITUTION:** A first amplifying means A1 subtracts and amplifies a second input signal IN2 from a first input signal IN1 and amplifies the signal IN2. Then, a second amplifying means A2 subtracts the first input signal IN1 from the second input signal IN2 and amplifies the signal IN1. Next, a third amplifying means A3 amplifies the level of difference between the output of the first amplifying means A1 and the output of the second amplifying means A2 and after that, the operation of the exclusive OR is executed for the respective outputs of the first and second amplifying means A1 and A2. Then, the determining signal is outputted to show the determination of the data for an output OUT of the third amplifying means A3. Thus, the data can be exactly read in the output voltage of a sense amplifier circuit

